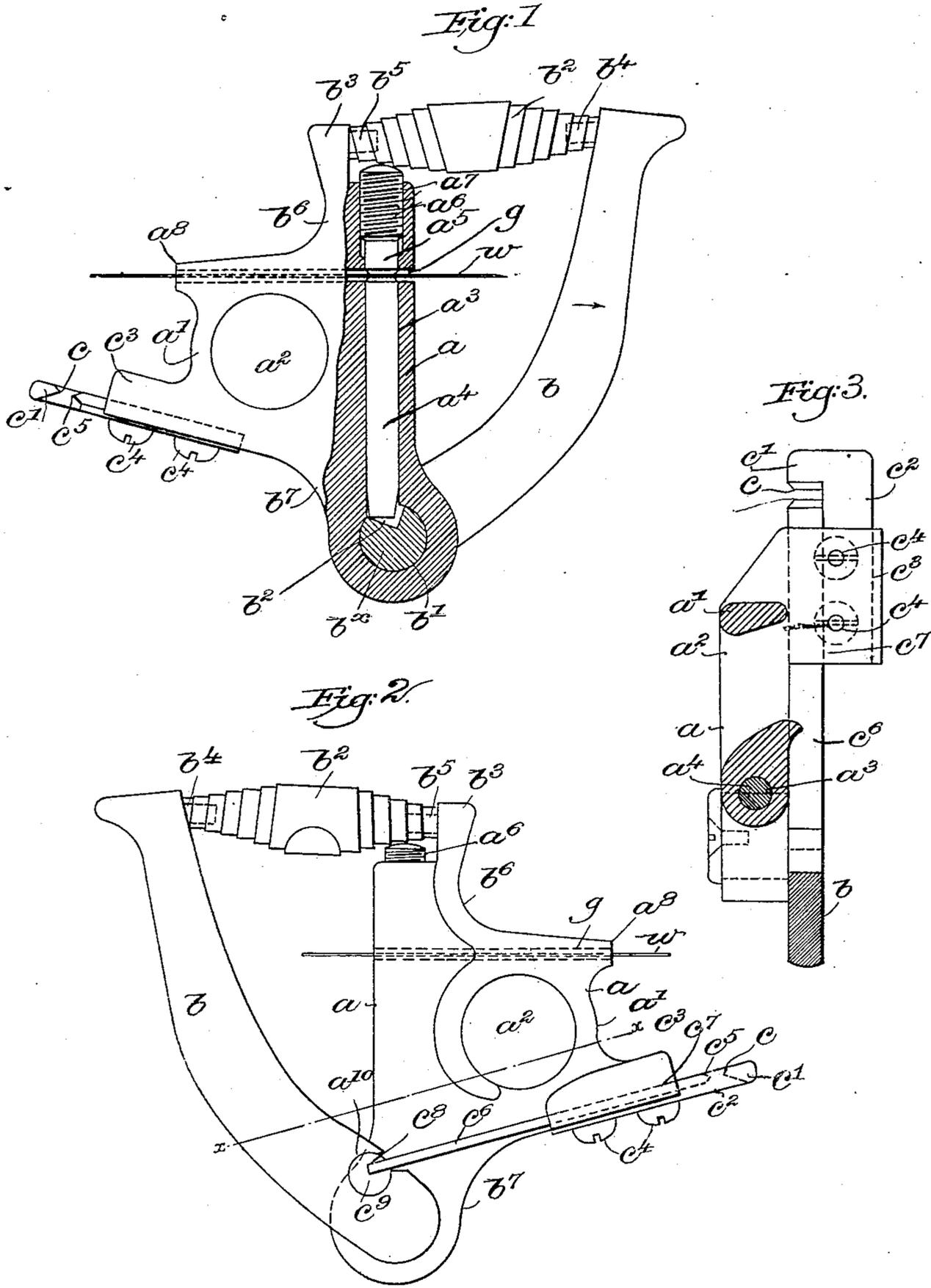


H. H. CUMMINGS.  
STRINGING TOOL.

(Application filed Mar. 10, 1900.)

(No Model.)



Witnesses:  
 Elliot O. Seaver  
 John F. C. Trumbull

Inventor:  
 Henry H. Cummings,  
 By his Attorney,  
 Benjamin Phillips

# UNITED STATES PATENT OFFICE.

HENRY H. CUMMINGS, OF MALDEN, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

## STRINGING-TOOL.

SPECIFICATION forming part of Letters Patent No. 711,039, dated October 14, 1902.

Application filed March 10, 1900. Serial No. 8,131. (No model.)

To all whom it may concern:

Be it known that I, HENRY H. CUMMINGS, a citizen of the United States, residing at Malden, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Stringing-Tools; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to an improved stringing-tool, and more particularly to a stringing-tool designed to grip a cord or wire and by means of which strain or tension may be placed on the wire, and provided also with means for cutting off a section of the wire.

In the lasting of boots and shoes as now carried out it is quite customary to omit the lasting-tacks around the toe of the shoe and to secure the toe by a cord or piece of wire, one end of which is secured to a lasting-tack at one side of the last near the toe portion and then drawn around the toe, gathering the upper, and fastened to a tack on the opposite side of the shoe. In performing this operation it is necessary to apply considerable strain to the cord or wire, and where this is done by hand it causes considerable injury to the hand of the operator.

The object of the present invention is to provide a simple tool whereby the wire will be firmly gripped and by means of which considerable strain may be placed thereon, and to provide said tool with a cutting mechanism whereby after the wire has been secured in place it may be cut off.

To the above end the present invention consists of the devices and combinations of devices, which will be hereinafter described and claimed.

A preferred form of the present invention is shown in the accompanying drawings, wherein—

Figure 1 shows the same in side elevation, parts being in section to show the interior construction. Fig. 2 shows the tool in side elevation looking at the opposite side of that

shown in Fig. 1; and Fig. 3 shows a horizontal sectional view taken on the dotted line  $xx$ , Fig. 2.

As shown in the drawings, the tool comprises a suitable frame  $a$ , designed to be gripped by the hand of the operator and provided with a forward extension  $a'$ , in which is formed an opening  $a^2$ , arranged to receive the middle finger of the hand of the operator, and provided above and below said projection  $a'$  with finger-rests  $b^6$  and  $b^7$ .

Within the frame  $a$  is formed a bearing  $a^3$ , in which reciprocates a gripping-plunger  $a^4$ , which coöperates with a block  $a^5$ , fitted into the upper end of the bearing  $a^3$  and backed up by an adjusting-screw  $a^6$ , fitted in a threaded bearing  $a^7$  in the upper end of the bearing  $a^3$ .

The gripping-plunger  $a^4$  and the block  $a^5$  are designed to grip the wire or cord  $w$ , which passes through a passage  $g$ , extending diametrically across the bearing  $a^3$  and through the projecting portion  $a'$  of the frame  $a$ , the wire leading out of a projecting nose  $a^8$ , as clearly shown in the drawings.

The plunger  $a^4$  is raised in the bearing  $a^3$  to grip the wire by means of the lever  $b$ , which is provided with a lateral stud or shaft  $b^x$ , fitted in a bearing  $b^1$  and provided with a notch or shoulder  $b^2$ , engaging the lower end of the plunger  $a^4$ , whereby when the lever  $b$  is rocked in the direction of the arrow (shown in Fig. 1) the plunger  $a^4$  will be raised to grip the wire. The lever  $b$  is normally held or forced in the direction of the arrow (shown in Fig. 1) by a suitable spring  $b^2$ , whereby the wire will be automatically gripped when the lever  $b$  is released from pressure, and such spring may be conveniently formed, as shown in the drawings, of a strip of spring metal coiled upon itself and interposed between the lever  $b$  and a projection  $b^3$  of the frame  $a$ , the lever  $b$  and the projection  $b^3$  being preferably provided with studs  $b^4$  and  $b^5$ , arranged to take into the ends of the spring  $b^2$  and maintain the spring in position.

From the foregoing description it will be noted that the spring  $b^2$  normally acts to

maintain the plunger  $a^4$  elevated and the wire gripped between the end of the plunger  $a^4$  and the block  $a^5$ , and while so gripped the operator, grasping the tool in one hand with the fingers engaging the finger-rests at the front of the frame  $a$  and the palm of the hand engaging the back of the lever  $b$  may exert considerable tension or strain on the wire, and after the wire has been secured, as by a tack, or fastened as described pressure on the lever  $b$  in the direction opposite to that indicated by the arrow will release the wire and permit it to be drawn through the guide or passage  $g$ .

As before stated, the tool is provided with a wire-cutting device, which in the preferred form of the invention is connected with and controlled by the lever  $b$ , which controls the gripping device, the arrangement being such that when the lever  $b$  is actuated to release the wire it also actuates the wire-cutting device. This wire-cutting device may be arranged in any suitable or desired manner; but, as shown, it consists of a fixed blade  $c$ , which is formed on a lateral projection  $c'$  of a plate  $c^2$ , secured to the under side of a forward projection  $c^3$  of the frame  $a$  by means of screws  $c^4$ . Coöperating with the fixed blade  $c$  is a movable blade  $c^5$ , which is formed on the forward end of a reciprocating slide  $c^6$ , held in a guideway  $c^7$ , formed in the upper surface of the plate  $c^2$ , carrying the fixed blade  $c$ . The rear end of the slide  $c^6$  is fixed in a recess  $c^8$ , formed in a circular block  $c^9$ , seated in and free to turn in a bearing  $a^{10}$ , formed in the lever  $b$  above its fulcrum, the arrangement being such that when the lever  $b$  is rocked toward the frame  $a$  to release the wire  $w$  it will simultaneously advance the slide  $c^6$  and cause the cutter  $c^5$  and  $c$  to cut off the wire inserted therebetween.

The operation of the devices of the drawings is as follows: The device is grasped by the hand of the operator with the middle finger projected through the aperture  $a^2$ , and the forefinger resting on the finger-rest  $b^6$ , the palm of the hand against the back of the lever  $b$ . Pressure is then applied to the lever  $b$ , whereby to release the wire and permit a sufficient length thereof for the purpose required to be drawn from the passage  $g$ . If the device be employed in stringing toes in lasting, as described, the free end of the wire projecting from the nose  $a^8$  is secured to a lasting-tack on one side of the shoe near the toe, and the operator draws the wire around the toe of the last, and the wire being gripped between the plunger  $a^4$  and the block  $a^5$  considerable strain or tension may be put thereon, firmly drawing the puckered edge of the upper against the shoulder of the insole. While the wire is still gripped and held under tension, it is wrapped around and secured to a lasting-tack on the opposite side of the shoe, whereupon by raising the forward end of the tool the wire as it leads from the tack may be inserted between the cutters

$c$  and  $c^5$ , and pressure being applied to the lever  $b$  the cutter  $c^5$  will be advanced toward the cutter  $c$  and cut off the wire. At the same time the wire will be released from the gripping-jaws and a new section of wire may be drawn from the passage  $g$ .

It will be noted that the upward movement of the plunger  $a^4$  is limited by contact with the block  $a^5$  and that the position of the block  $a^5$  is adjusted by the screw  $a^6$ , and also that the rearward movement of the slide  $c^6$  of the cutter  $c^5$  is limited according to the vertical movement permitted to the plunger  $a^4$ , so that an adjustment of the block  $a^5$  to permit a larger or smaller wire to be inserted between the block  $a^5$  and the plunger  $a^4$  will also simultaneously adjust the distance between the cutters  $c$  and  $c^5$ .

Having described the construction and mode of operation of my invention, I claim as new and desire to secure by Letters Patent of the United States—

1. A stringing-tool, comprising a wire-gripping device, a wire-cutting device, and means for actuating the cutting device to cut the wire when the gripping device occupies its inoperative position, substantially as described.
2. In a stringing-tool, a frame having a wire-passage, a sliding gripping device, and means to slide said gripping device in said frame to grip the wire, substantially as described.
3. A stringing-tool, comprising a frame having a wire-passage, a block adjustably mounted on one side of said passage, a gripping device mounted upon the opposite side of said passage, and means for actuating the gripping device to grip the wire, substantially as described.
4. A stringing-tool, comprising a frame having a wire-passage, and a connected lever to be grasped by the hand, a wire-gripping device movable in said frame to grip the wire in said wire-passage, and means controlled by the movement of said lever to actuate said gripping device, substantially as described.
5. A stringing-tool, comprising a frame, a bearing therein, a gripping-plunger and gripping-block located in said bearing, a lever pivoted to said frame, and means carried by said lever for actuating the gripping-plunger, substantially as described.
6. A stringing-tool, comprising a frame having a bearing for a gripping device, a wire-gripper entering said bearing loosely, a sliding wire-cutting device located to be engaged with the wire as it passes from the frame, and means for sliding the gripping and cutting devices, substantially as described.
7. A stringing-tool, comprising a frame, a wire-gripping device, a cutting device, means for actuating the cutting device and for simultaneously causing the gripping device to release the wire, substantially as described.
8. A stringing-tool comprising a frame and a lever, wire-gripping mechanism, wire-cutting mechanism, and means for operating one

of said mechanisms when the lever is moved in one direction and for operating the other of said mechanisms when said lever is moved in the opposite direction, substantially as described.

5  
10  
15  
20  
9. A stringing-tool, comprising a frame, a wire-gripping device, a spring for actuating the gripping device to grip the wire, and means actuated by the hand of the operator to cause the gripping device to release the wire, substantially as described.

10. A stringing-tool comprising a frame having finger-rests and a wire-passage, a lever pivoted to said frame arranged to be engaged by the palm of the operator's hand, and a wire-gripping device controlled by said lever, substantially as described.

11. A stringing-tool comprising a frame having finger-rests and a wire-passage, a lever pivoted to said frame arranged to be engaged by the palm of the operator's hand, a

wire-gripping device actuated by said lever and a spring for moving said lever to actuate the gripping device to grip the wire, substantially as described.

12. A stringing-tool comprising a frame having finger-rests and a wire-passage, a lever pivoted to said frame arranged to be engaged by the palm of the operator's hand, and wire gripping and cutting devices actuated by said lever, substantially as described.

13. A stringing-tool comprising a frame having a wire-passage, a lever pivoted to said frame, a wire-gripping device actuated by said lever and a spring acting on the lever, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY H. CUMMINGS.

Witnesses:

ALFRED H. HILDRETH,  
HORACE VAN EVEREN.